CASE STUDIES

Impact of Cell Therapy on Myocardial Perfusion and Cardiovascular Outcomes in Patients With Angina Refractory to Medical Therapy

A Systematic Review and Meta-Analysis

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Conclusions: The present meta-analysis indicates that cell-based therapies are not only safe but also lead to an improvement in indices of angina, relevant clinical outcomes, and myocardial perfusion in patients with refractory angina. These encouraging results suggest that larger, phase III randomized controlled trials are in order to conclusively determine the effect of stem/progenitor cells in refractory angina. (*Circ Res.* 2016;118:984-993. DOI: 10.1161/CIRCRESAHA.115.308056.)

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A randomized double-blind control study of early intra-coronary autologous bone marrow cell infusion in acute myocardial infarction: the REGENERATE-AMI clinical trial

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Discussion / Between day 1 to 14 should not be studied anymore.

Aims Clinical trials suggest that intracoronary delivery of autologous bone marrow-derived cells (BMCs) 1–7 days post-acute myocardial infarction (AMI) may improve left ventricular (LV) function. Earlier time points have not been evaluated. We sought to determine the effect of intracoronary autologous BMC on LV function when delivered within 24 h of successful reperfusion therapy.

Methods and results A multi-centre phase II randomized, double-blind, and placebo-controlled trial. One hundred patients with anterior AMI and significant regional wall motion abnormality were randomized to receive either intracoronary infusion of BMC or placebo (1:1) within 24 h of successful primary percutaneous intervention (PPCI). The primary endpoint was the change in left ventricular ejection fraction (LVEF) between baseline and 1 year as determined by advanced cardiac imaging. At 1 year, although LVEF increased compared with baseline in both groups, the between-group difference favouring BMC was small (2.2%; 95% confidence interval, CI: −0.5 to 5.0; $P = 0.10$). However, there was a significantly greater myocardial salvage index in the BMC-treated group compared with placebo (0.1%; 95% CI: 0.0–0.20; $P = 0.048$). Major adverse events were rare in both treatment groups.

Conclusion The early infusion of intracoronary BMC following PPCI for patients with AMI and regional wall motion abnormality leads to a small non-significant improvement in LVEF when compared with placebo; however, it may play an important role in infarct remodelling and myocardial salvage.